Fig. 1

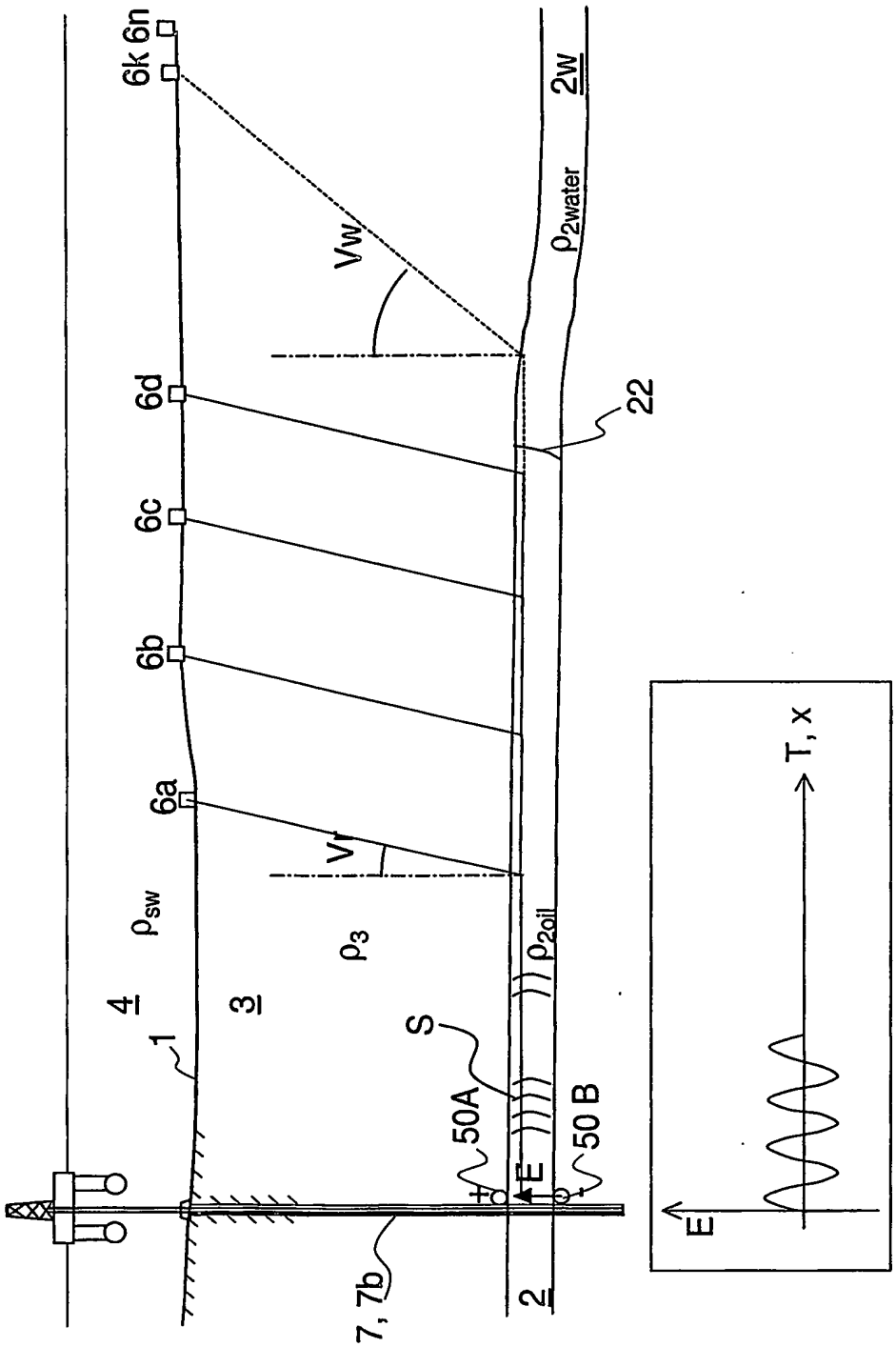


Fig. 2

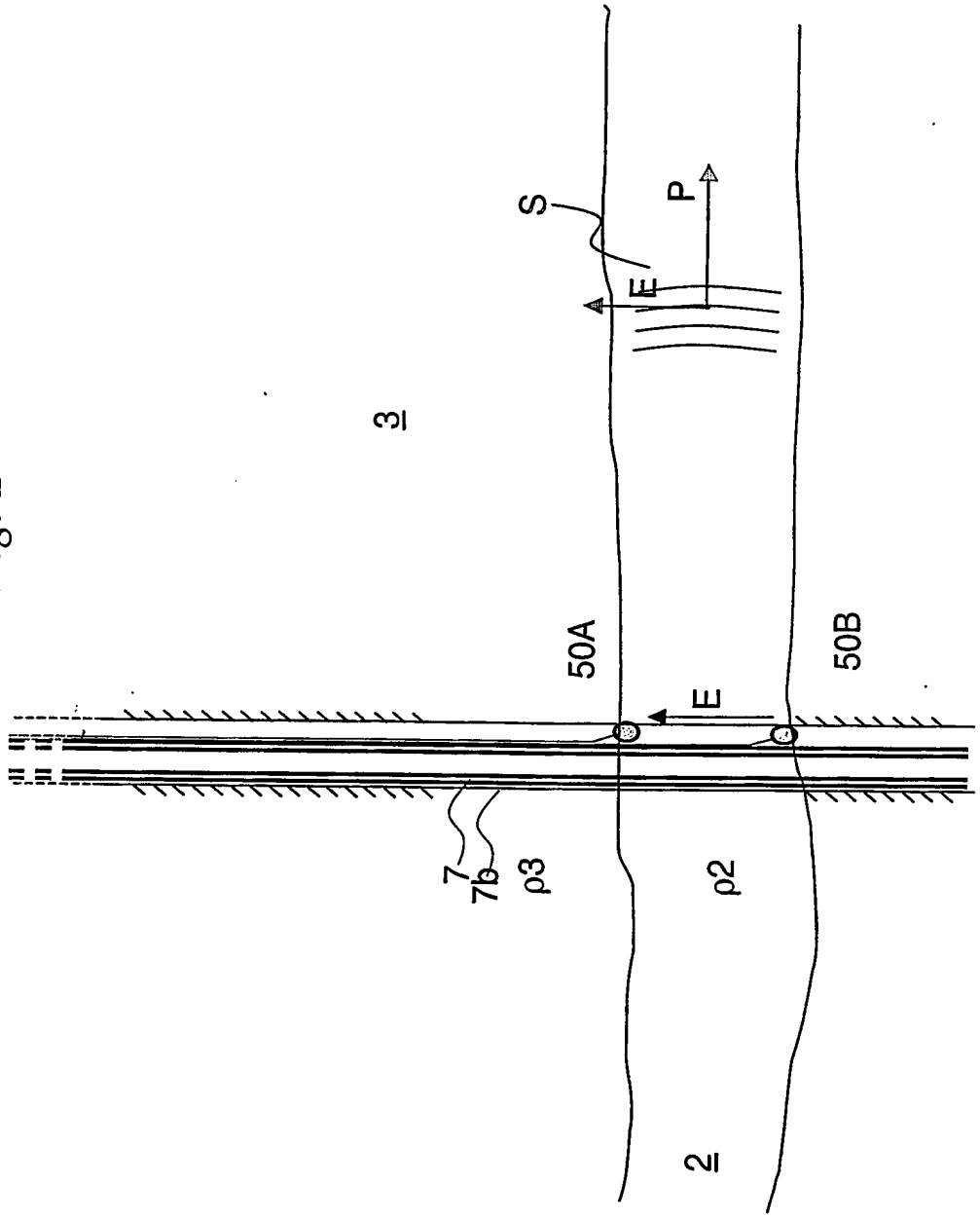


Fig. 3a

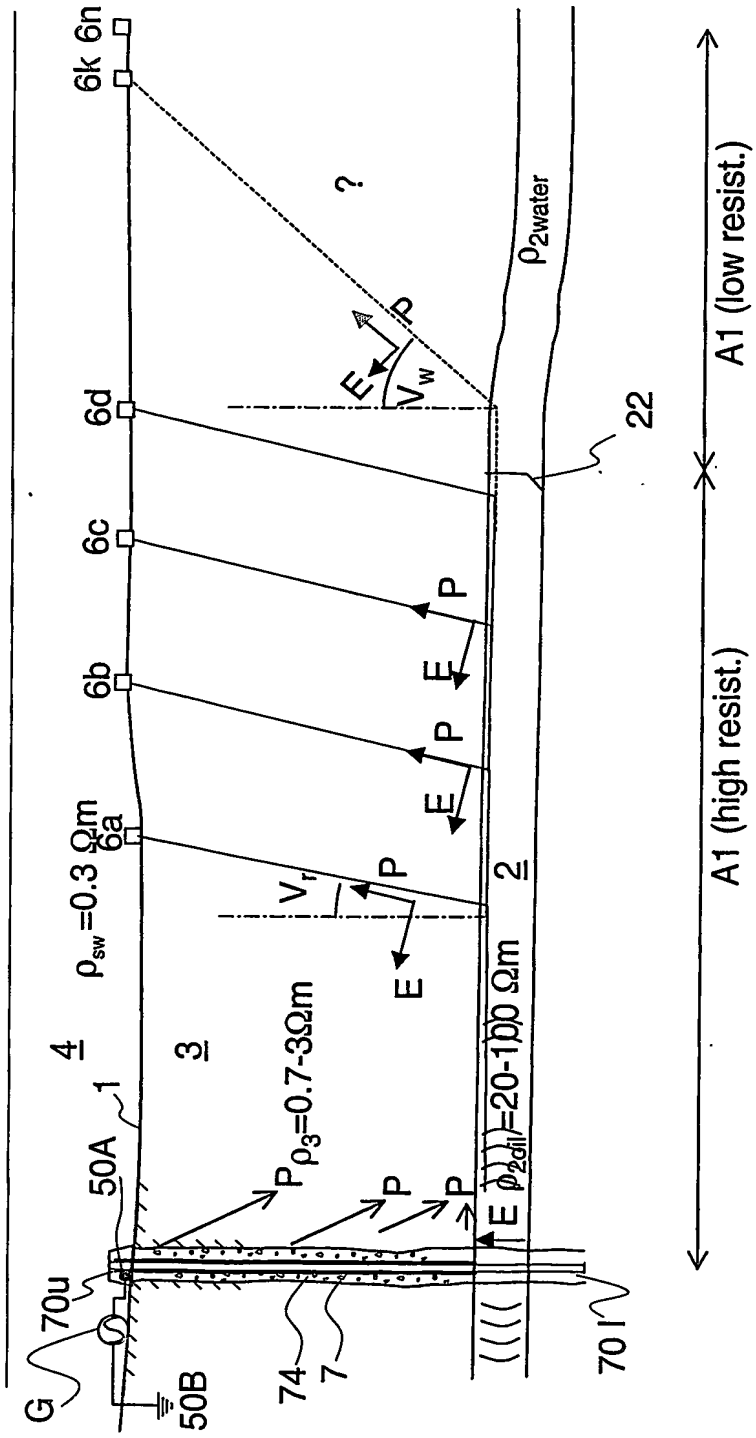

6k 6n
6d
6c
6b
6a
?
ρ_{2water}
E
P
V_w
22
A1 (low resist.)
A1 (high resist.)
ρ_{sw}=0.3 Ωm
V_r
4
3
2
1
50A
ρ_3=0.7-3Ωm
ρ_{2oil}=20-100 Ωm
70u
70 l
G
50B
74
7

Fig. 3b

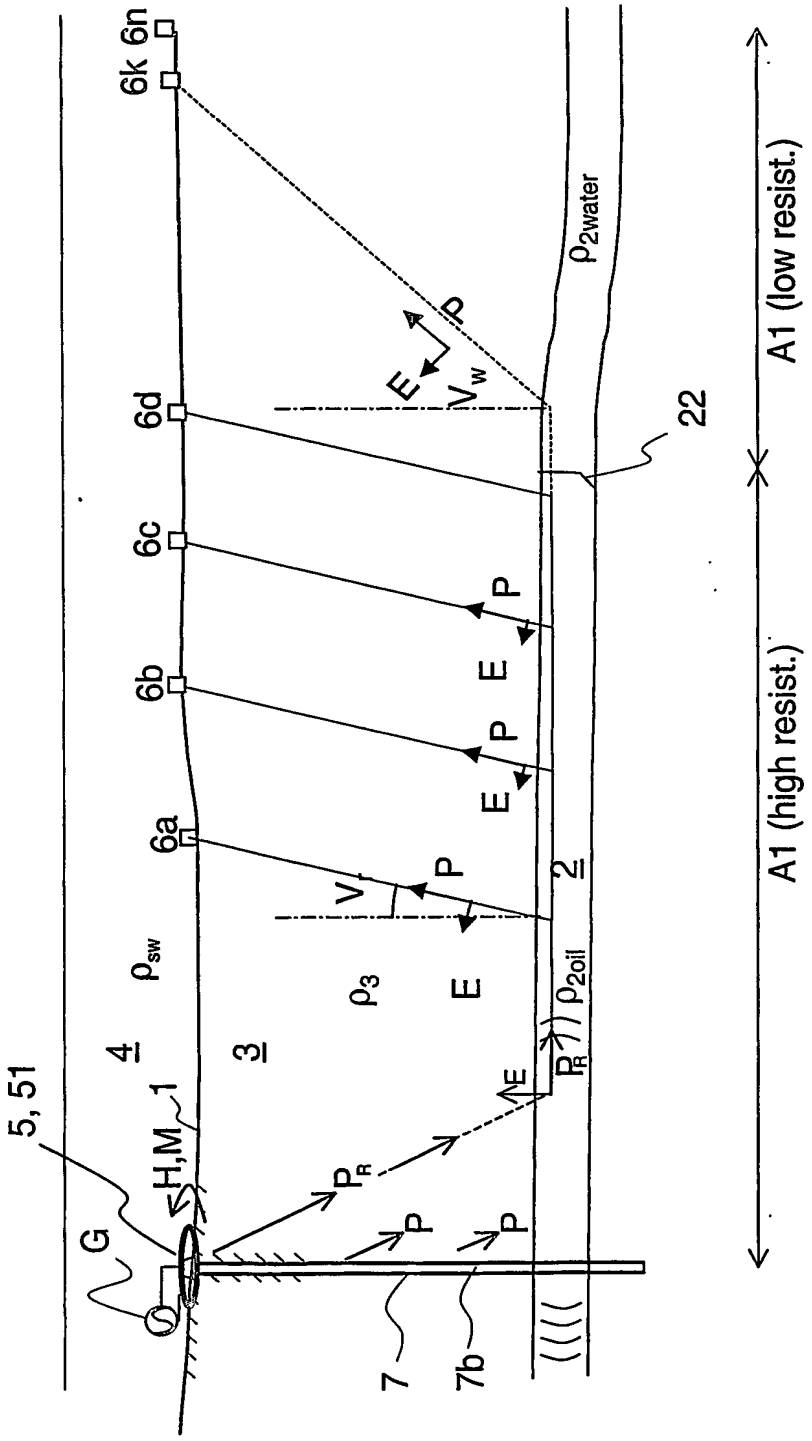

6k 6n
6d
6c
6b
6a
22
2
1
3
4
5, 51
G
H,M
7
7b
P
E
V
V_w
ρ_{2water}
ρ_{2oil}
ρ_{sw}
ρ_3
P_R
ρ_R
A1 (low resist.)
A1 (high resist.)

Fig. 3c

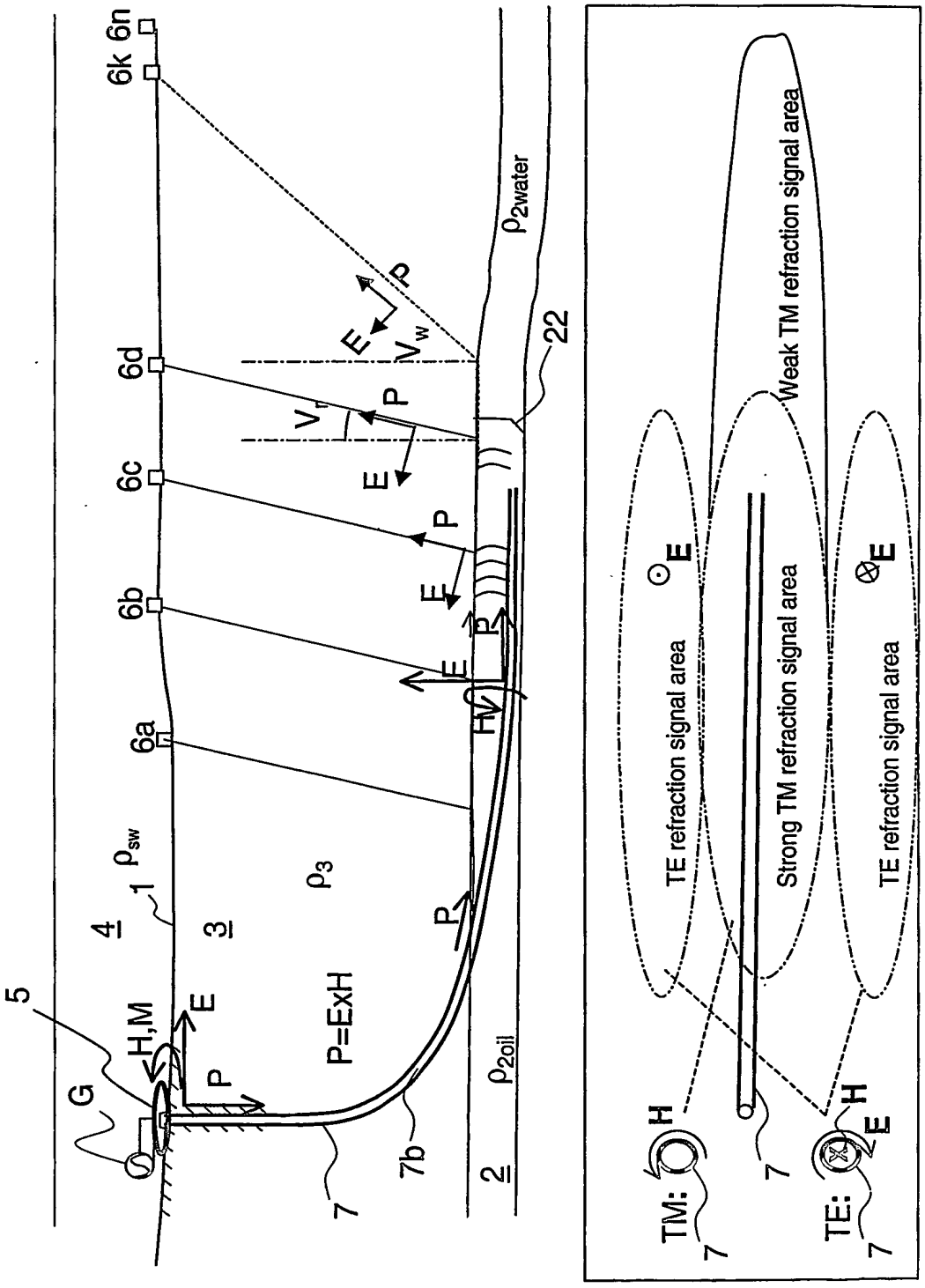
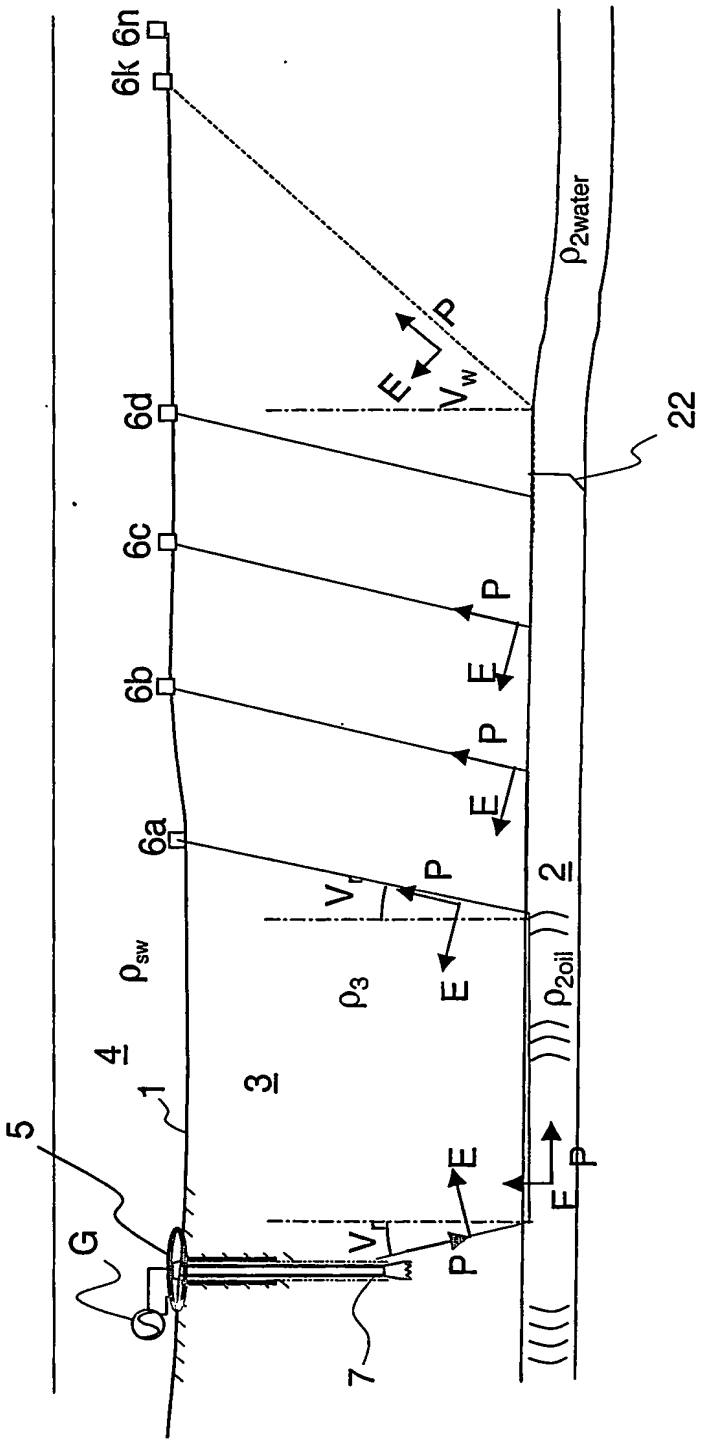
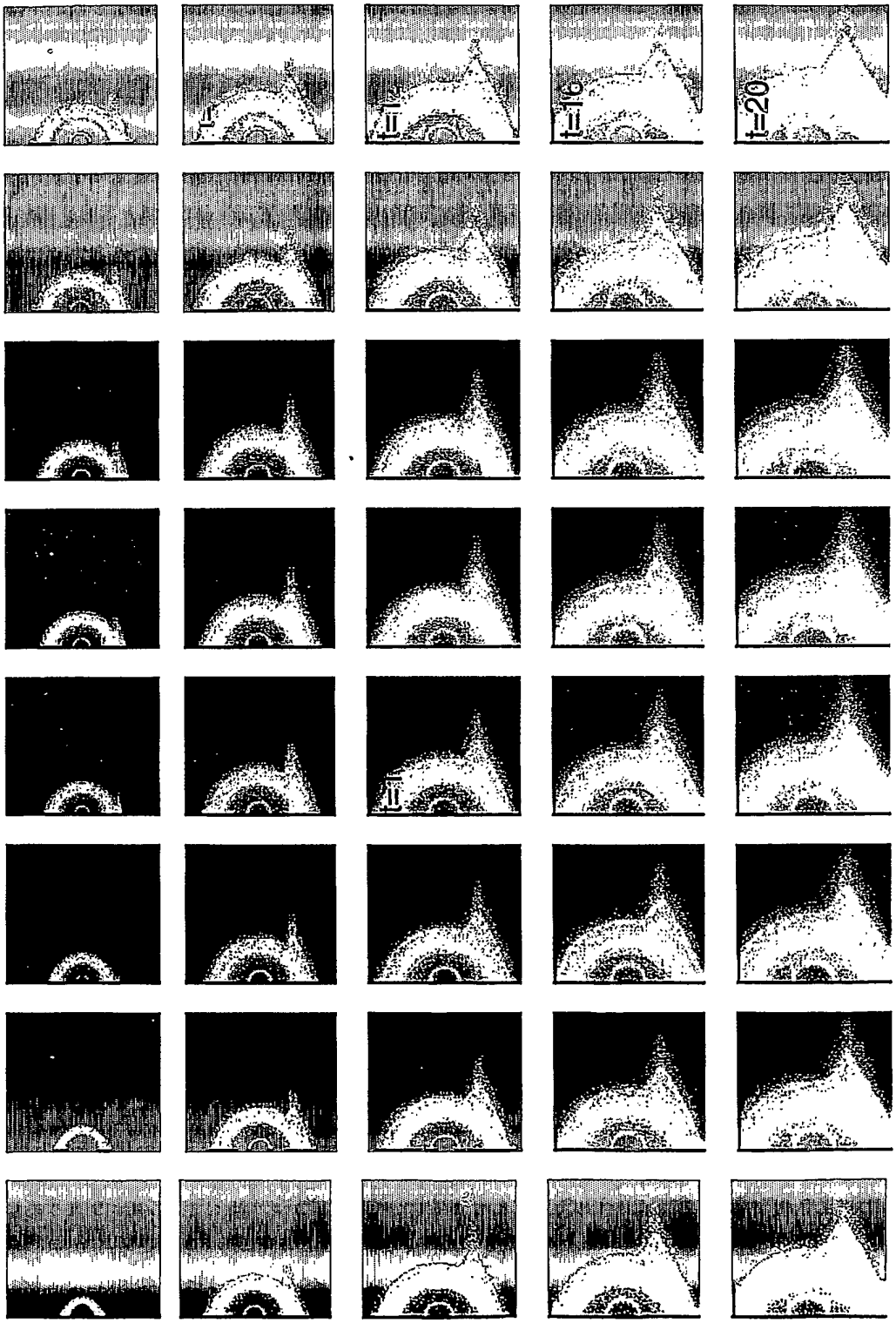

6k 6n
6d
6c
6b
6a
22
ρ_{2water}
V_w
V_r
E
P
ρ_{sw}
1
4
3
ρ_3
5
H,M
G
P=ExH
7
7b
2
ρ_{2oil}
TE refraction signal area
Strong TM refraction signal area
Weak TM refraction signal area
TM:
TE:
H

Fig. 3d


6k 6n
6d
6c
6b
6a
ρ_{2water}
22
E
P
V_w
ρ_{sw}
ρ_3
ρ_{2oil}
2
4
1
3
5
G
7



EM wave propagation from 500 to 20000 microseconds.
Time increment 500 microsec,

Fig. 4

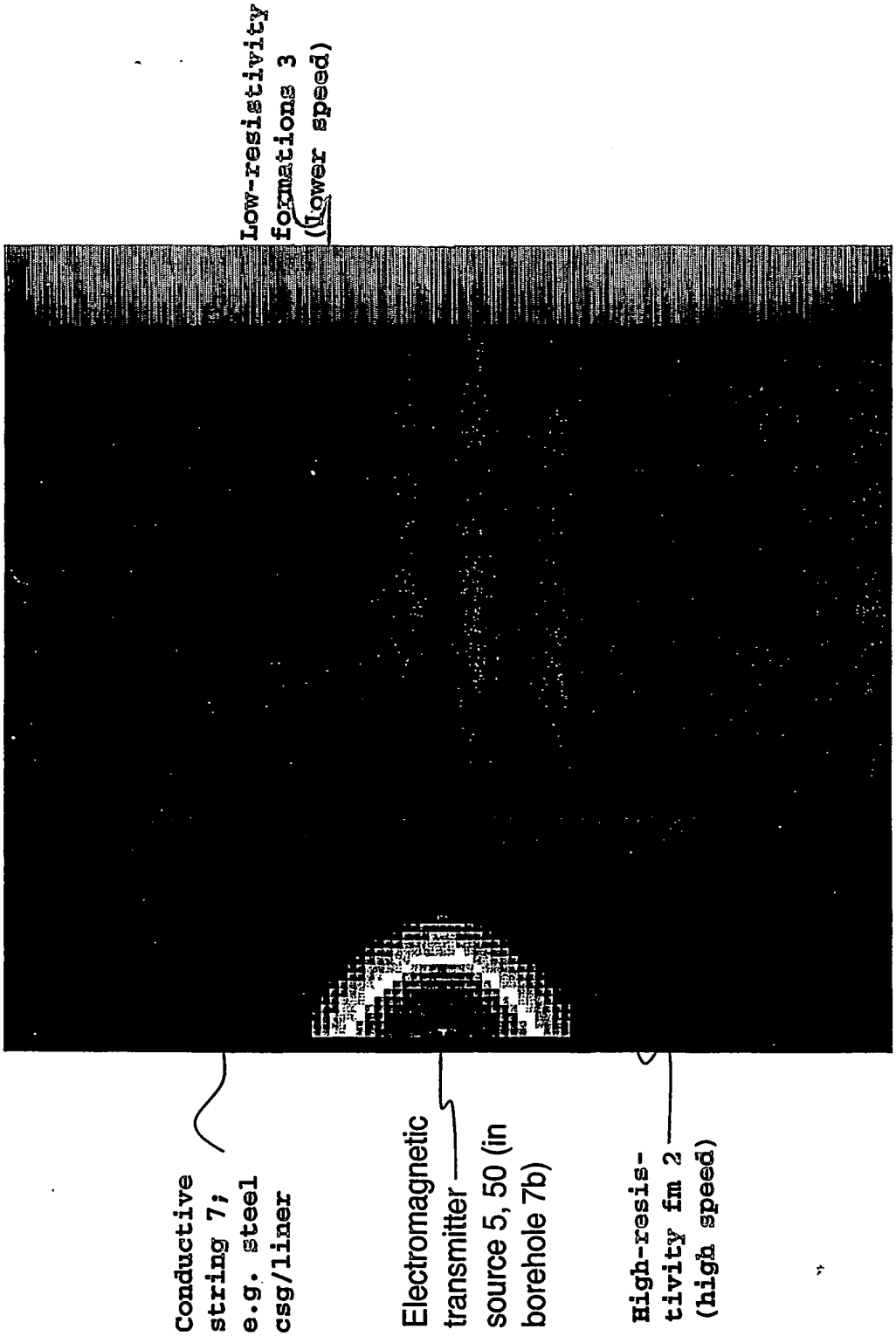

Low-resistivity formations 3 (lower speed)
Conductive string 7; e.g. steel csg/liner
Electromagnetic transmitter source 5, 50 (in borehole 7b)
High-resis-tivity fm 2 (high speed)
Electromagnetic signal propagated 500 microseconds

Fig. 5

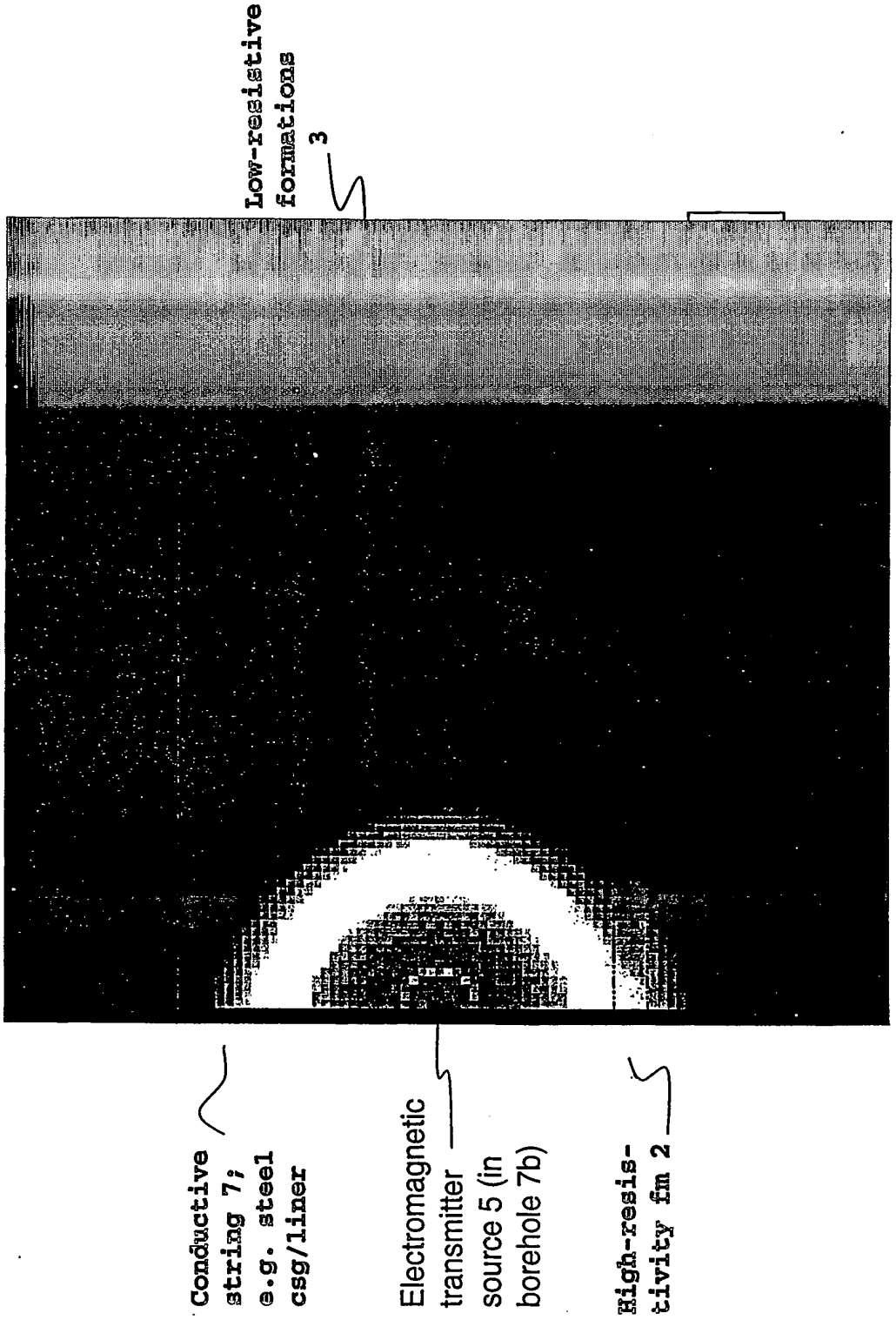

Low-resistive formations 3
Conductive string 7; e.g. steel csg/liner
Electromagnetic transmitter source 5 (in borehole 7b)
High-resistivity fm 2
Electromagnetic signal propagated 2 000 microseconds

Fig. 6

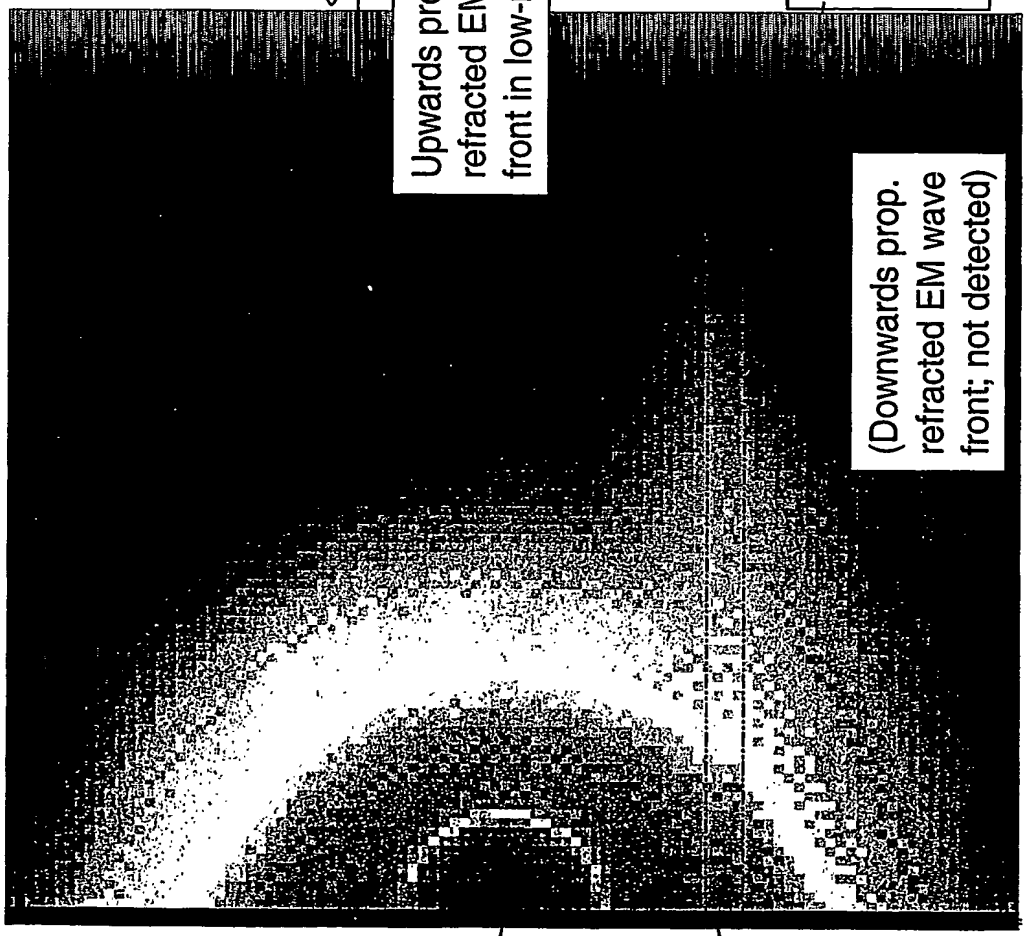

Low-resistive formations 3
Upwards propagating refracted EM wave front in low-resistive fm. 3
Faster propagation guided EM wave front F_2 in high-resistive fm. 2
(Downwards prop. refracted EM wave front; not detected)
Conductive string 7; e.g. steel csg/liner
Electromagnetic transmitter source 5 (in borehole 7b)
High-resis-tivity fm 2
Electromagnetic signal propagated 10 000 microseconds

Fig. 7

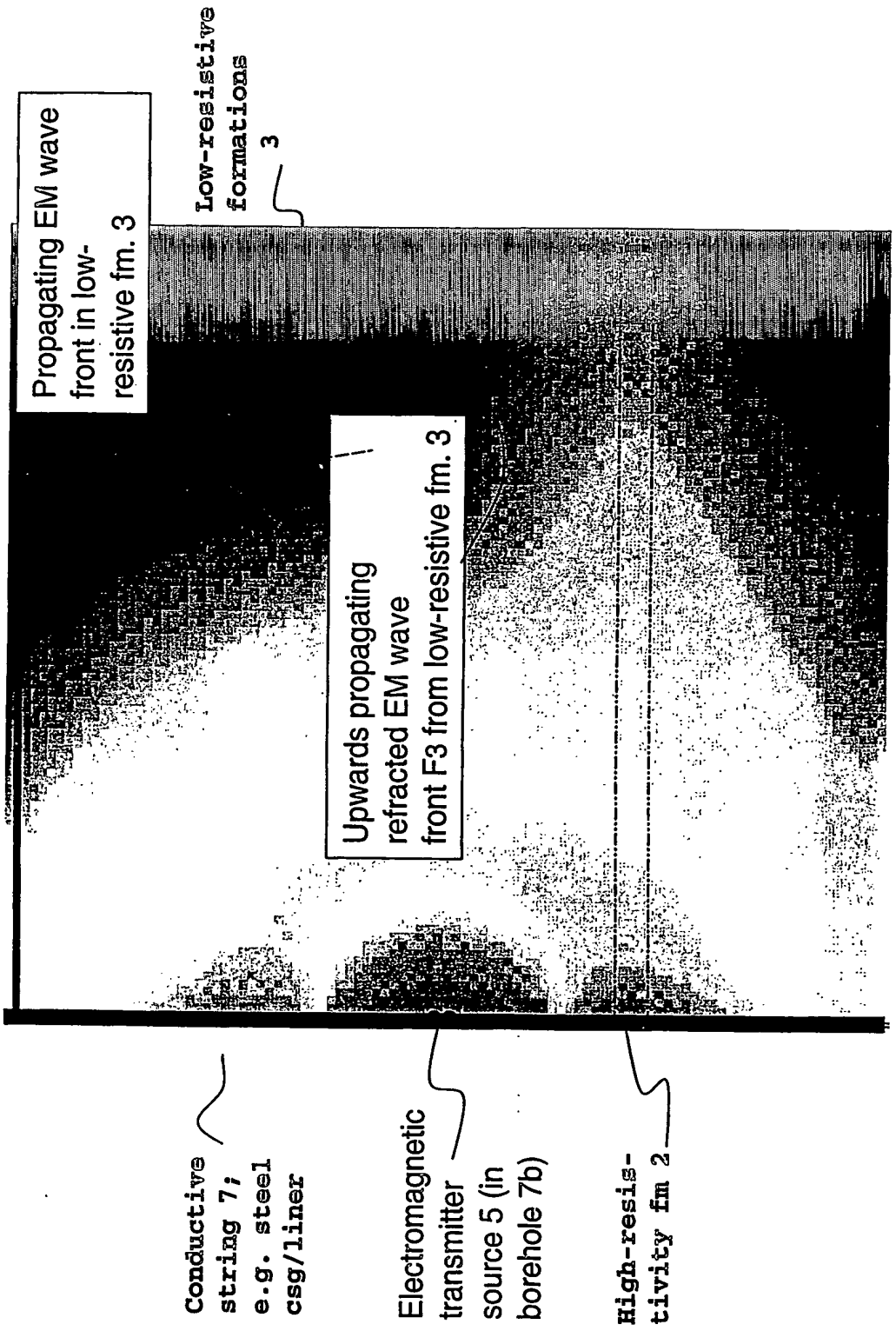

Propagating EM wave front in low-resistive fm. 3
Low-resistive formations 3
Upwards propagating refracted EM wave front F3 from low-resistive fm. 3
Conductive string 7; e.g. steel csg/liner
Electromagnetic transmitter source 5 (in borehole 7b)
High-resistivity fm 2
Electromagnetic signal propagated 20 000 microseconds

Fig. 8

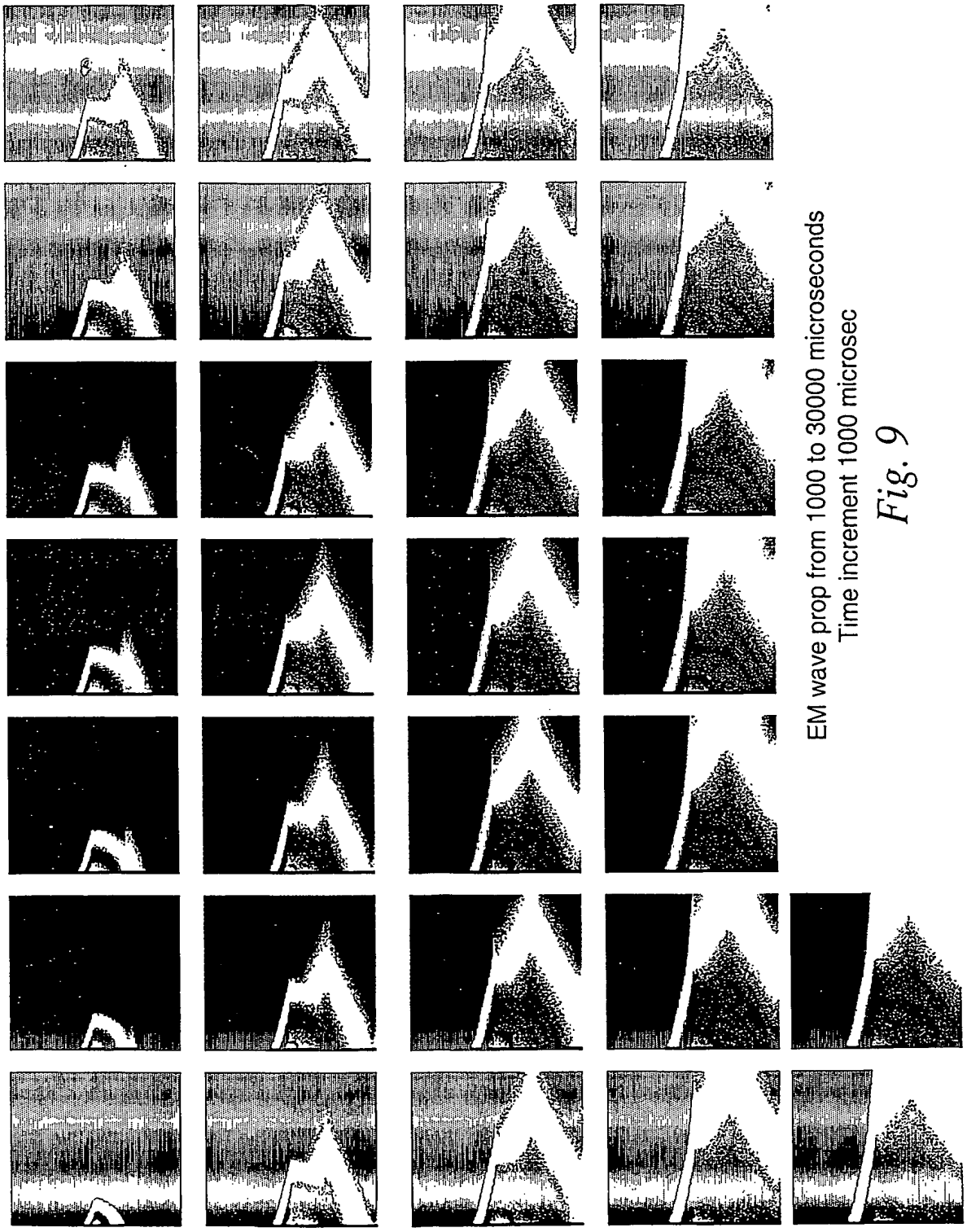
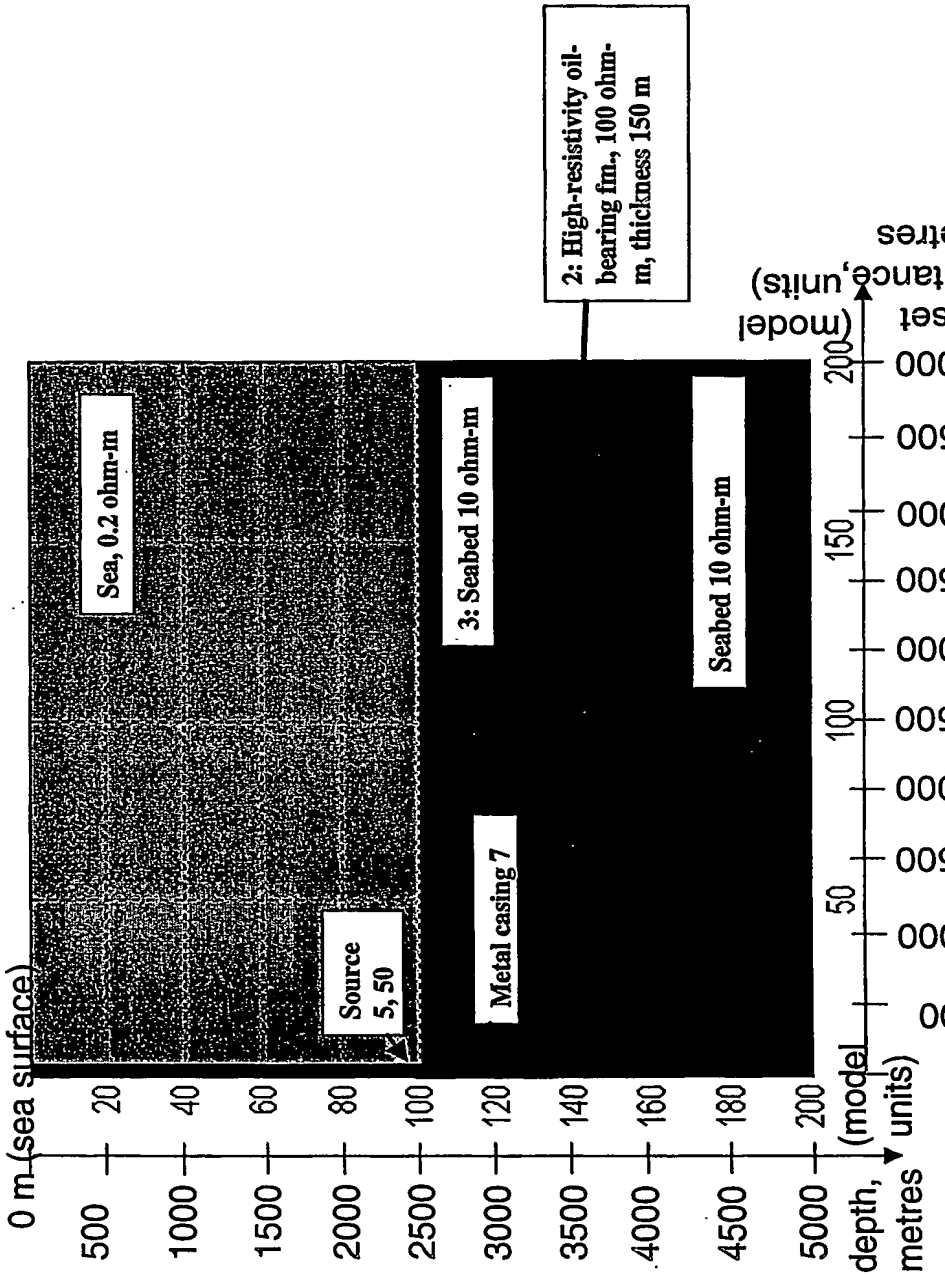
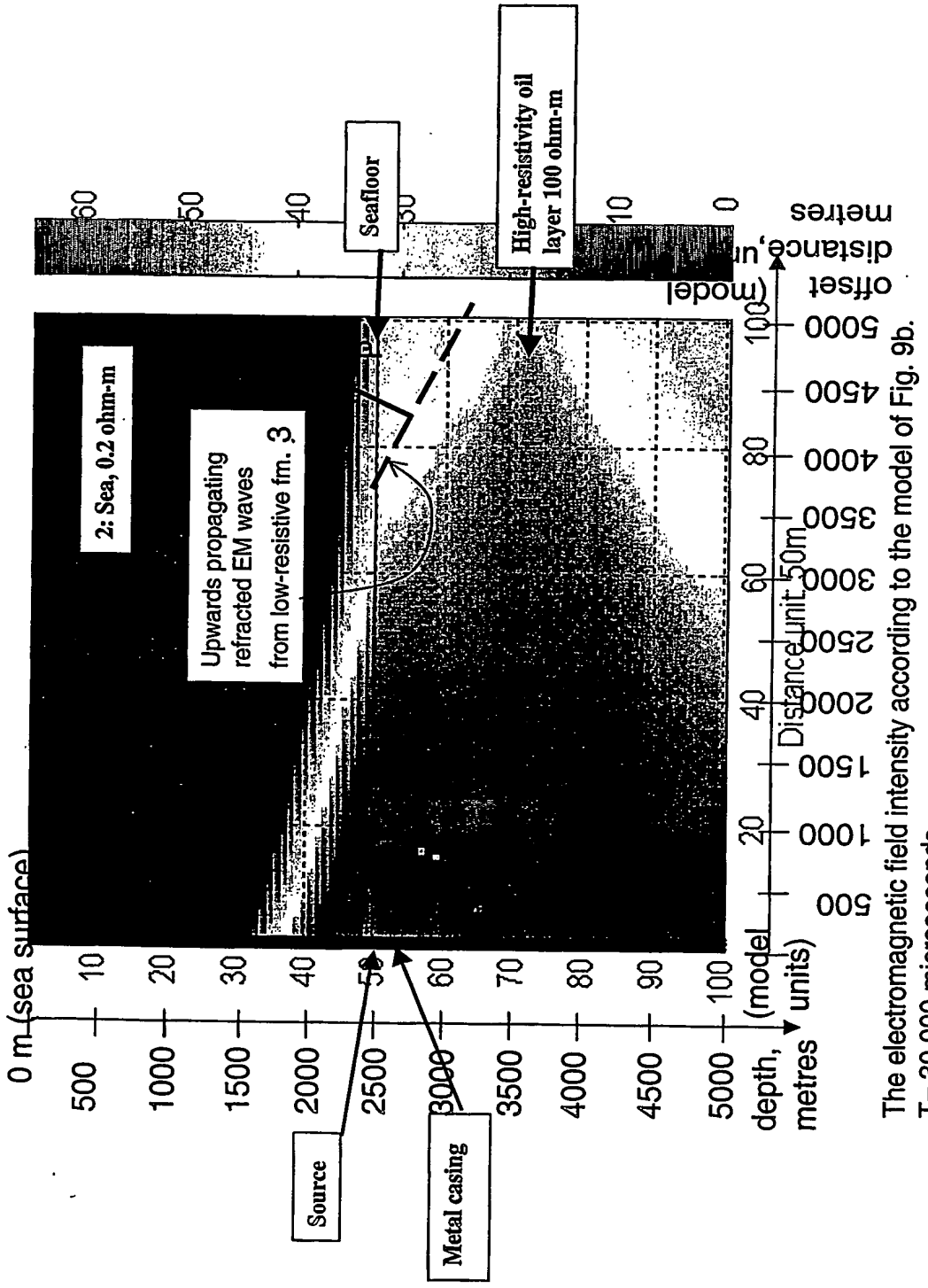

EM wave prop from 1000 to 30000 microseconds
Time increment 1000 microsec

Fig. 9



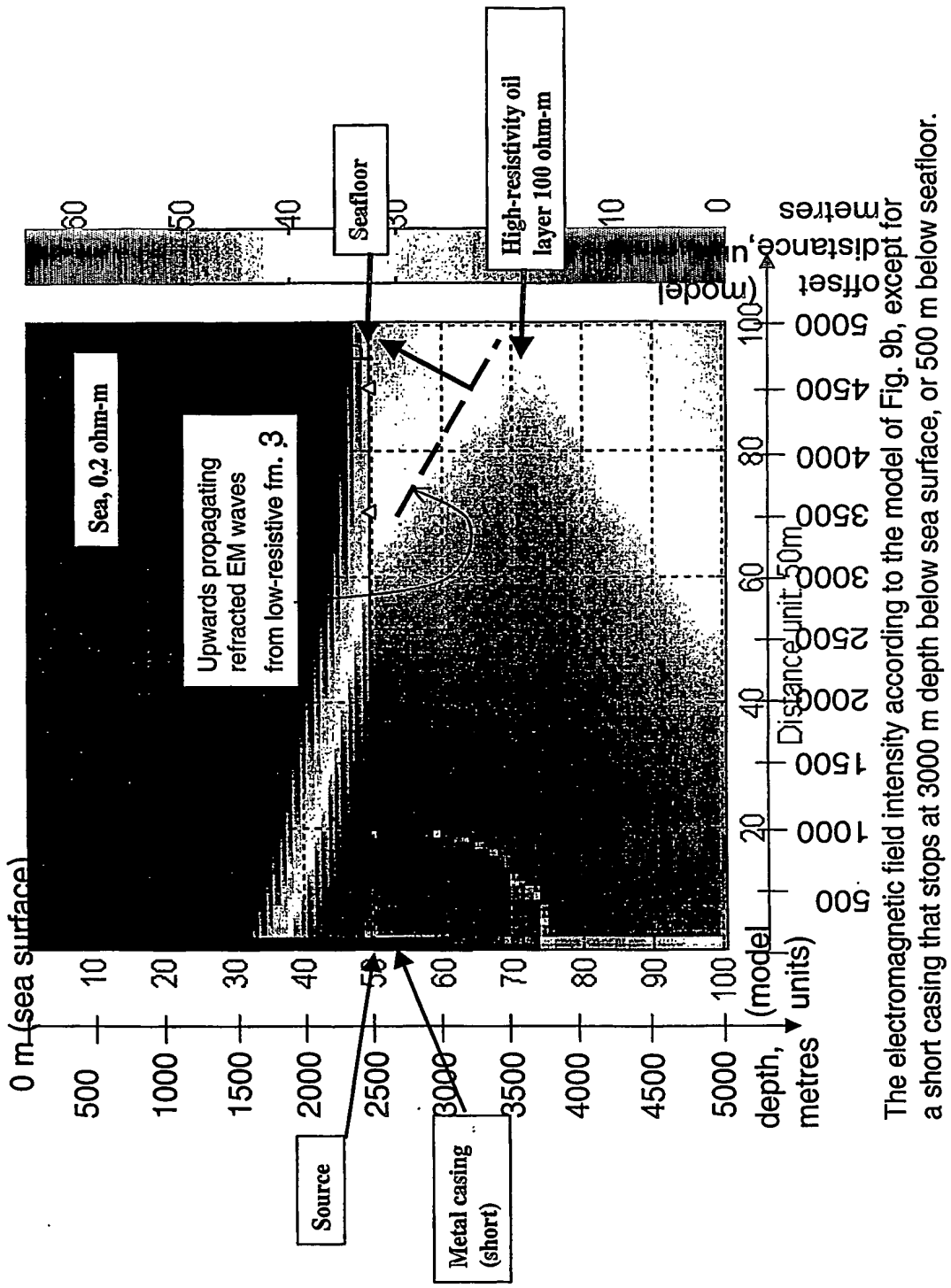
The material model of Fig. 9, indicating a metal casing extending from the seafloor at 2500 m to a total depth of 5000 m into the rocks, with an EM transmitter source on the casing at the seafloor. A high-resistivity oil-bearing rock layer is indicated.

Fig. 9b



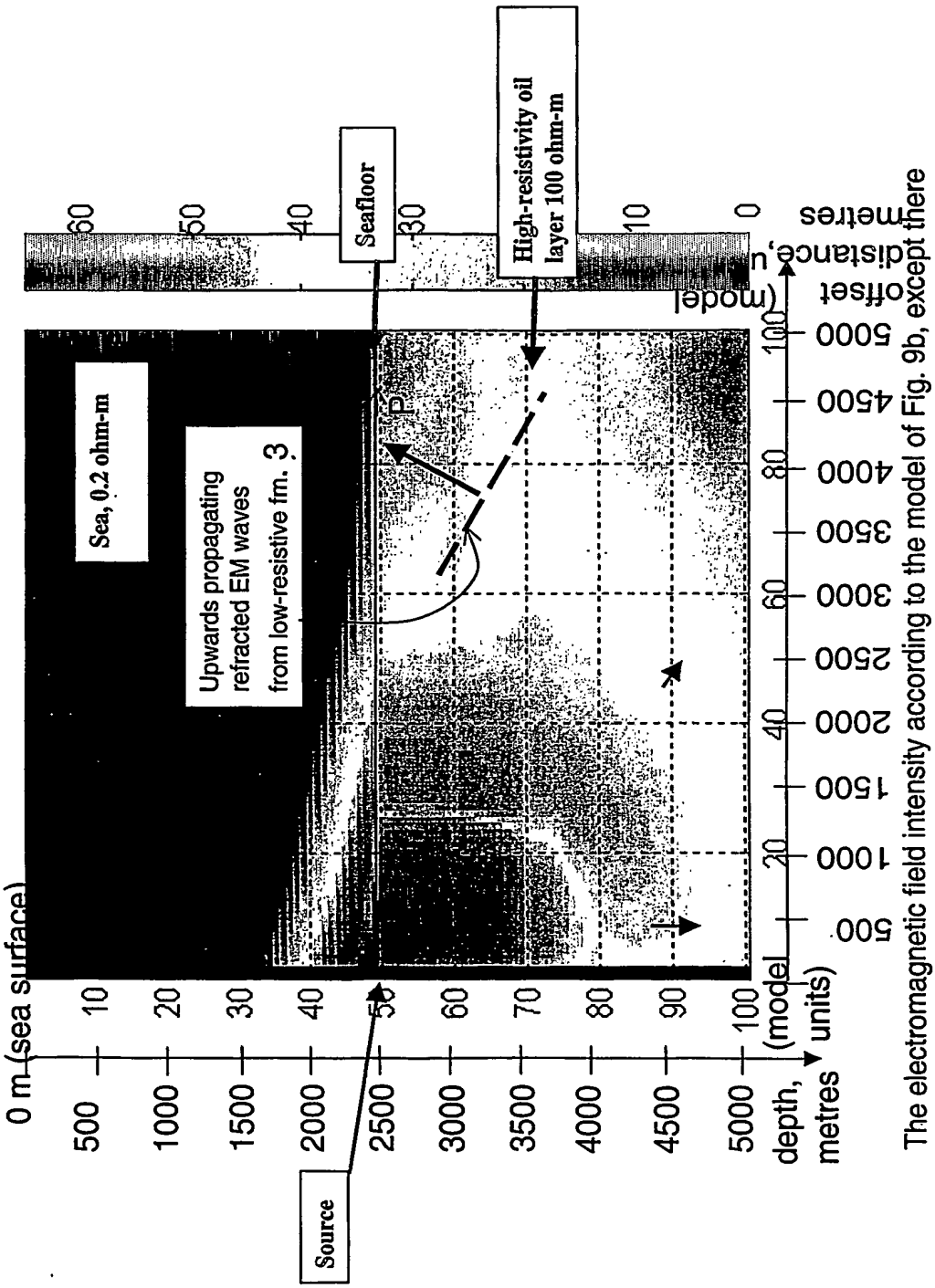
The electromagnetic field intensity according to the model of Fig. 9b.
T= 30 000 microseconds.

Fig. 10



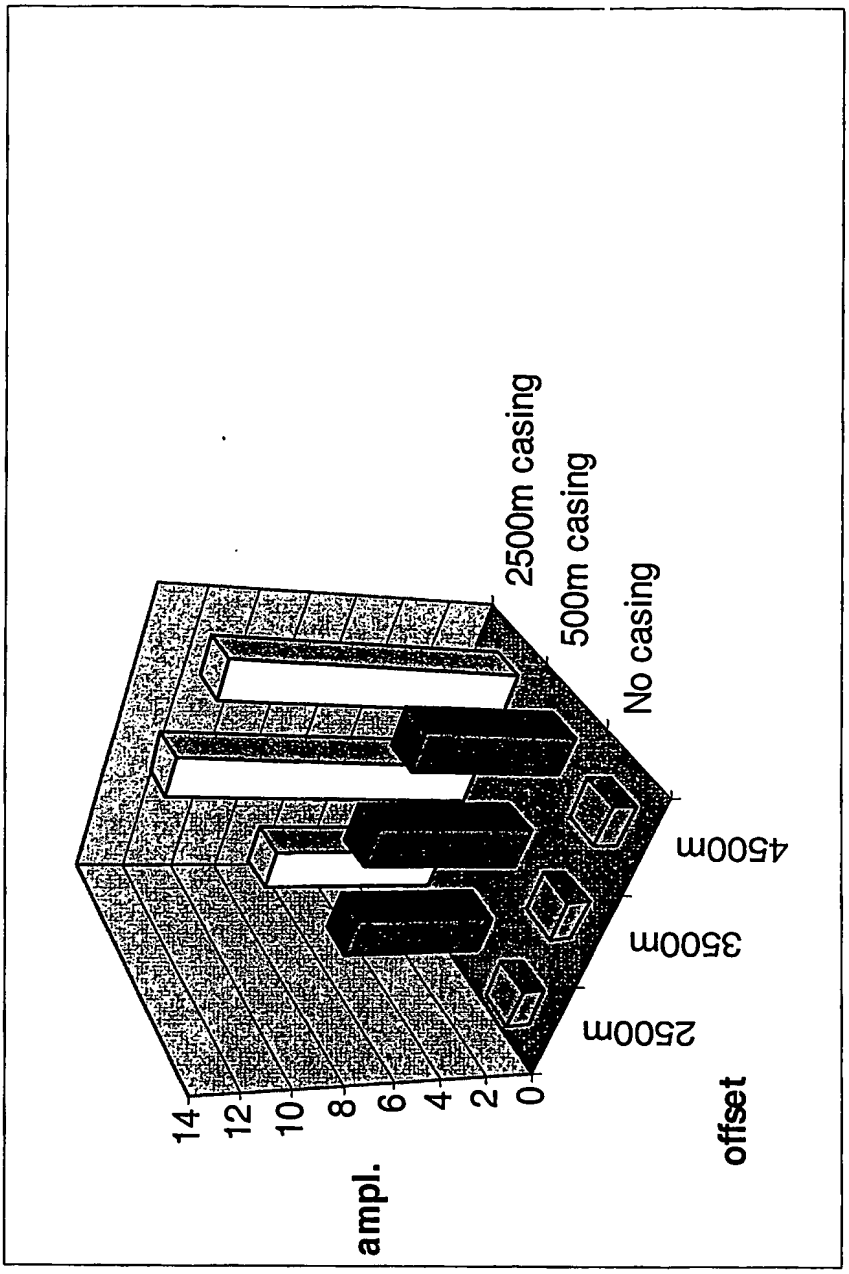
The electromagnetic field intensity according to the model of Fig. 9b, except for a short casing that stops at 3000 m depth below sea surface, or 500 m below seafloor. T= 30 000 microseconds.

Fig. 11



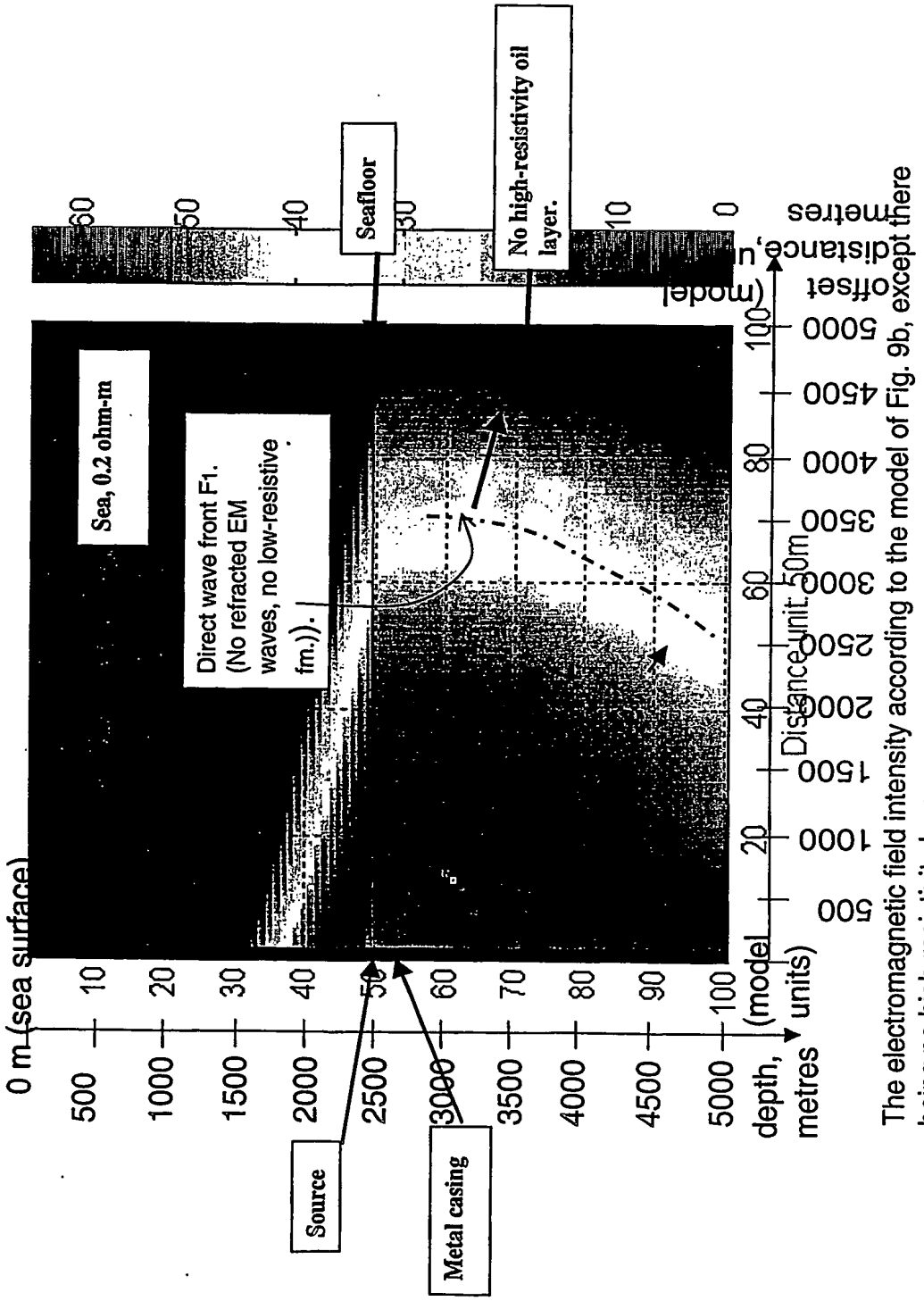
The electromagnetic field intensity according to the model of Fig. 9b, except there being no casing at all in the well.
T= 30 000 microseconds.

Fig. 12



A comparison between amplitudes as measured on the seabed at three different source-receiver (2500m, 3500m, and 4500m) offsets in the following situations:no casing, a short casing and a long casing.

Fig. 13



The electromagnetic field intensity according to the model of Fig. 9b, except there being no high resistivity layer.
T= 30 000 microseconds.

Fig. 14